

## Abstract

Described are nucleic acid molecules encoding polypeptides having the enzymatic activity of an RNA-directed RNA polymerase (RdRP). Vectors comprising said nucleic acid molecules, wherein the nucleic acid molecules are operatively linked to regulatory elements allowing expression in prokaryotic and/or eukaryotic host cells are provided. Additionally, polypeptides encoded by said nucleic acid molecules and methods for the production of said polypeptides are described. Described are also pharmaceutical and diagnostic compositions as well as kits comprising the aforementioned nucleic acid molecules and/or comprising a nucleic acid molecule which is complementary to such a nucleic acid molecule. Said compositions and kits may further comprise polypeptides encoded by the described nucleic acid molecules. Furthermore, antagonists and inhibitors of the aforesaid polypeptides and/or antibodies specifically recognizing such polypeptides are described. Also provided are methods and uses comprising the nucleic acid molecules, vectors, polypeptides, antibodies and antagonists and inhibitors of the invention for modulating gene expression in humans and animals. Furthermore, transgenic plant cells and plants containing the aforementioned nucleic acid molecules as well as the use of the aforementioned nucleic acid molecules, polypeptides and/or antagonists/inhibitors in plant cell culture and plant tissue culture and/or plant breeding are described.